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POPULATIONS OF PLANTHOPPERS IN RICE FIELDS OF UDAYA VARIETY IN PURI DISTRICT OF ORISSA

A. PRAKASH, S. P. GUPTA* AND A. CHOUDHURY**
ENTOMOLOGY DIVISION, CENTRAL RICE RESEARCH INSTITUTE, CUTTACK-753006, INDIA.
CENTRAL PLANT PROTECTION STATION, TULSIPUR, CUTTACK-753008, INDIA*.
CENTRAL SURVEILLANCE STATION, TULSIPUR, CUTTACK-753008, INDIA**

In fields of rice variety Udaya in six blocks of Puri district (Orissa) nymph and adult populations of brown planthopper, *Nilaparvata lugens* and white backed planthopper, *Sogatella furcifera* were studied to observe stability of resistance to the variety Populations of planthoppers in total were recorded above economic threshold level during tillering stages, which gradually declined to a zero level upto flowering stage of the crop. Natural enemies of planthoppers were also found with populations of test insects.

Brown planthopper (BPH), *Nilaparvata lugens* and white backed planthopper (WBPH), *Sogatella furcifera* are common rice planthoppers presently found in rice fields of Orissa, BPH attacks susceptible rice varieties in large numbers and cause hopper burns and also known to transmit grassy stunt, ragged stunt and wilted stunt virus diseases. WBPH frequently occurs with BPH but does not transmit disease and rarely causes hopper burn. However, its heavy infestations may cause outer leaves of a hill to show burn symptoms. Udaya (CR 190–103), a culture from the cross CR 129–118 x CR 57–49–92–2 is popularly grown in a coverage of 24,000 hectares out of 38,000 hectares of total rice coverage in summer paddy 1987 in Puri district, which considered as rice bowl of Orissa This variety is popular for its resistance to BPH, WBPH, gall midge, green leaf hopper

blast, root knot nematode and tolerant to yellow stem borer and rice tungro virus (Misra *et al.* 1985)

With an objective to study the stability of resistance of this variety to planthoppers in farmers fields, BPH and WBPH populations were recorded in six blocks *viz* , Bhubaneswar, Pipili, Gop, Nimapara, Balipatna and Balianta of district Puri, at early tillering (ET), mid-tillering (MT), late tillering (LT), boot leaf (BL), flowering (FL), heading (HD) and grain maturing (M) stages of crop in an acre of untreated plot in each block. Adult and nymph populations of planthoppers were counted as number of insect per hill in 1 x 1 meter areas randomly

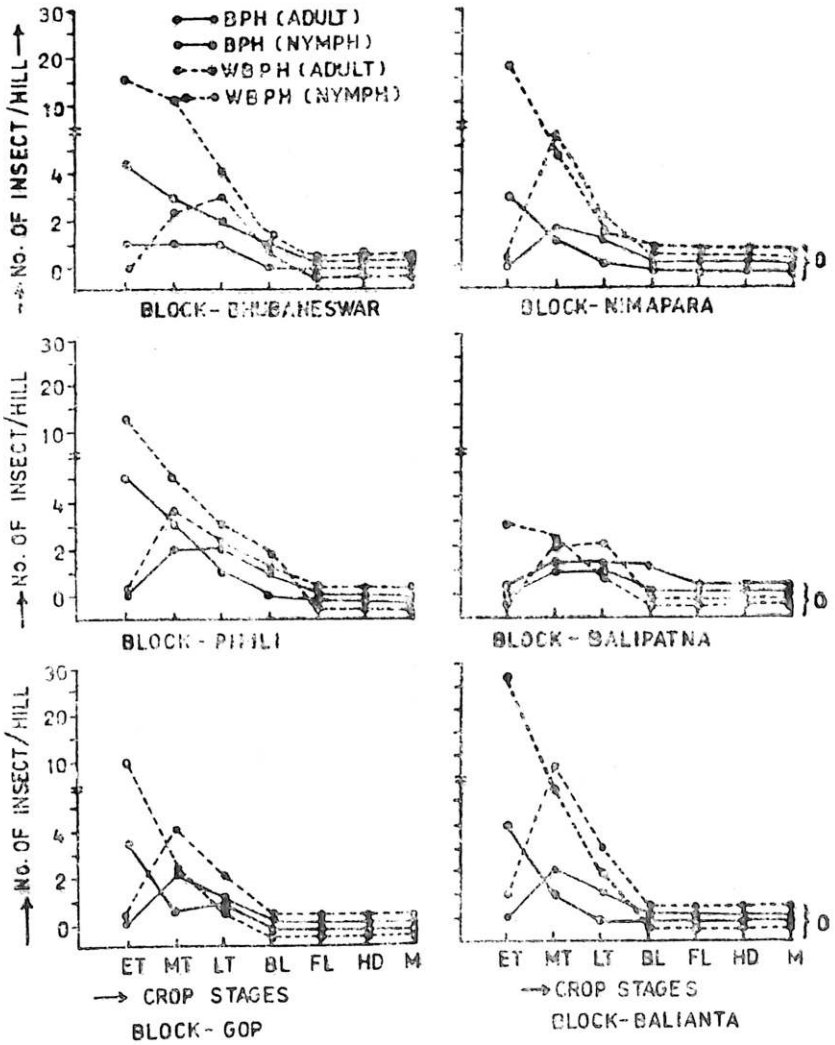

Fig. 1. Populations of planthoppers at different crop stages.

selected at ten different locations in each plot and presented in Fig 1.

Results thus obtained that adult population of BPH varied from 0–1 adult per hill at early tillering stage, increased gradually upto 2 adults per hill at mid-tillering to boot leaf stages and declined to a zero level at flowering stage and onward in all the six blocks. However, nymphal populations were initially higher as 3–5 nymphs per hill at early tillering stage and declined gradually to a zero level at flowering stage and onward upto grain maturation Adult population of WBPH showed a trend similar to BPH adult population and found to be only 0–1 adult per hill at early tillering, increased upto 5 adult per hill at mid-tillering and declined afterwards to a zero level at flowering stage of plant growth Nymphal populations of WBPH however, initially commenced with 10–27 nymphs per hill at early tillering stage, declined sharply to a zero level upto flowering stage and onward stages.

The applications of insecticides for the control of planthoppers populations in rice fields are recommended only above 5–10 insects per hill as economic threshold level (Misra & Israel, 1970). Present results showed initial populations of insects in total more than recommended economic threshold level but this variety was absolutely free from any hopper burn damage in the crop and crop was not treated with any synthetic chemical. The variety did not render to planthopper damages because their populations gradually declined with the growing age of rice plant may be due to increase in hardiness of stem tissues of rice plant with its age or due to the presence of their natural enemies like mirid bugs and dryinids were also found alongwith planthopper populations.

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